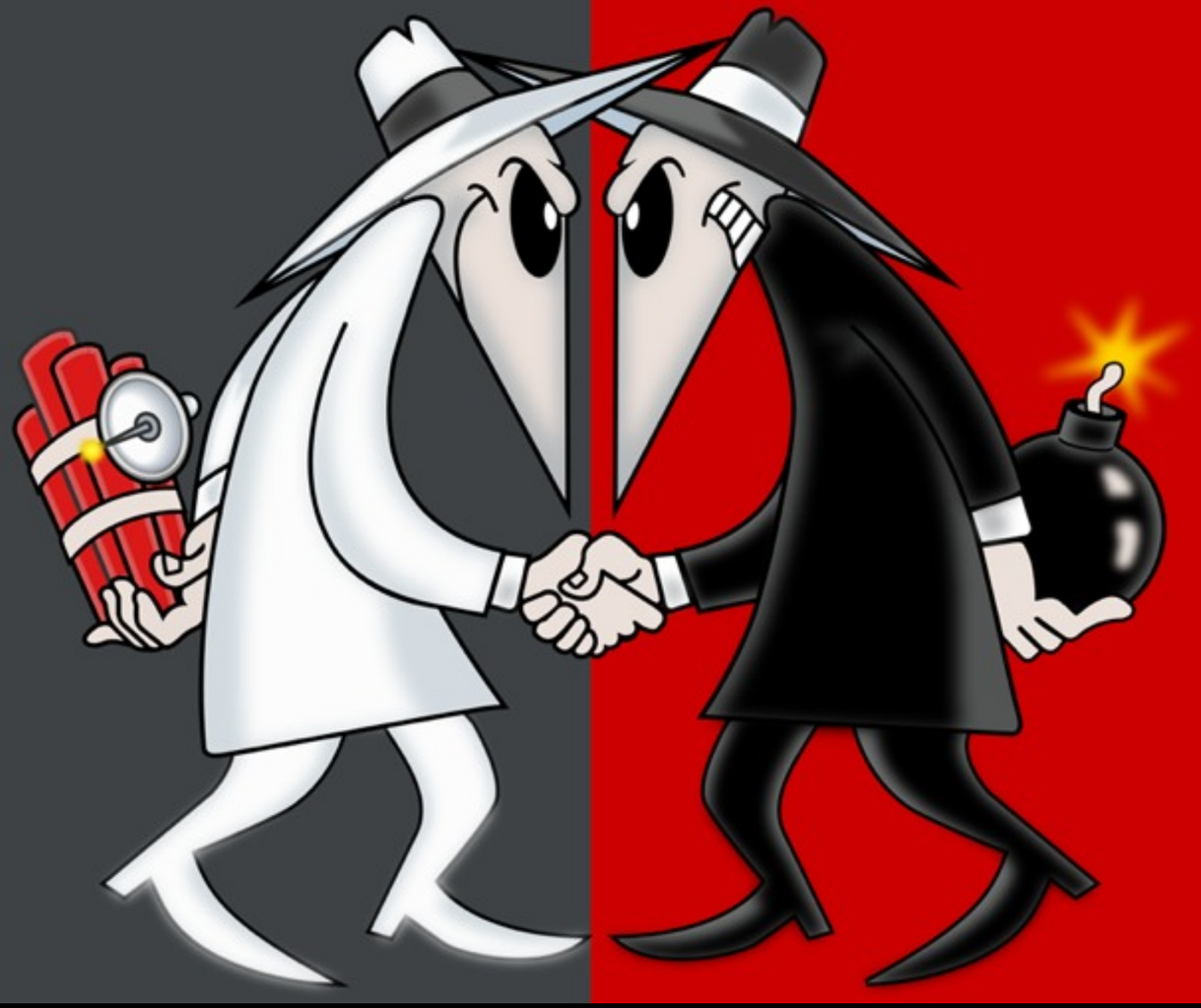


HTML5 vs. Flash

Where Flash isn’t needed anymore

Remy Sharp
@rem

sometimes does flash-ing

O3D Beach Demo

Google 1,380 videos Subscribe

00:00 / 00:58 Normal CC 360p

Like Add to Share 634,618

Suggestions

Google
by Goog
3,173,32

Google
by Goog
580,844

Your w
by Goog
747,986

Similar
by Goog
191,190

Google
- New
by Goog


Now Playing
8 of 20
Cadillac On 22's
David Banner
Mississippi: The Album
0:14
-4:09
MENU
Enercell
RadioShack
ALKALINE BATTERY

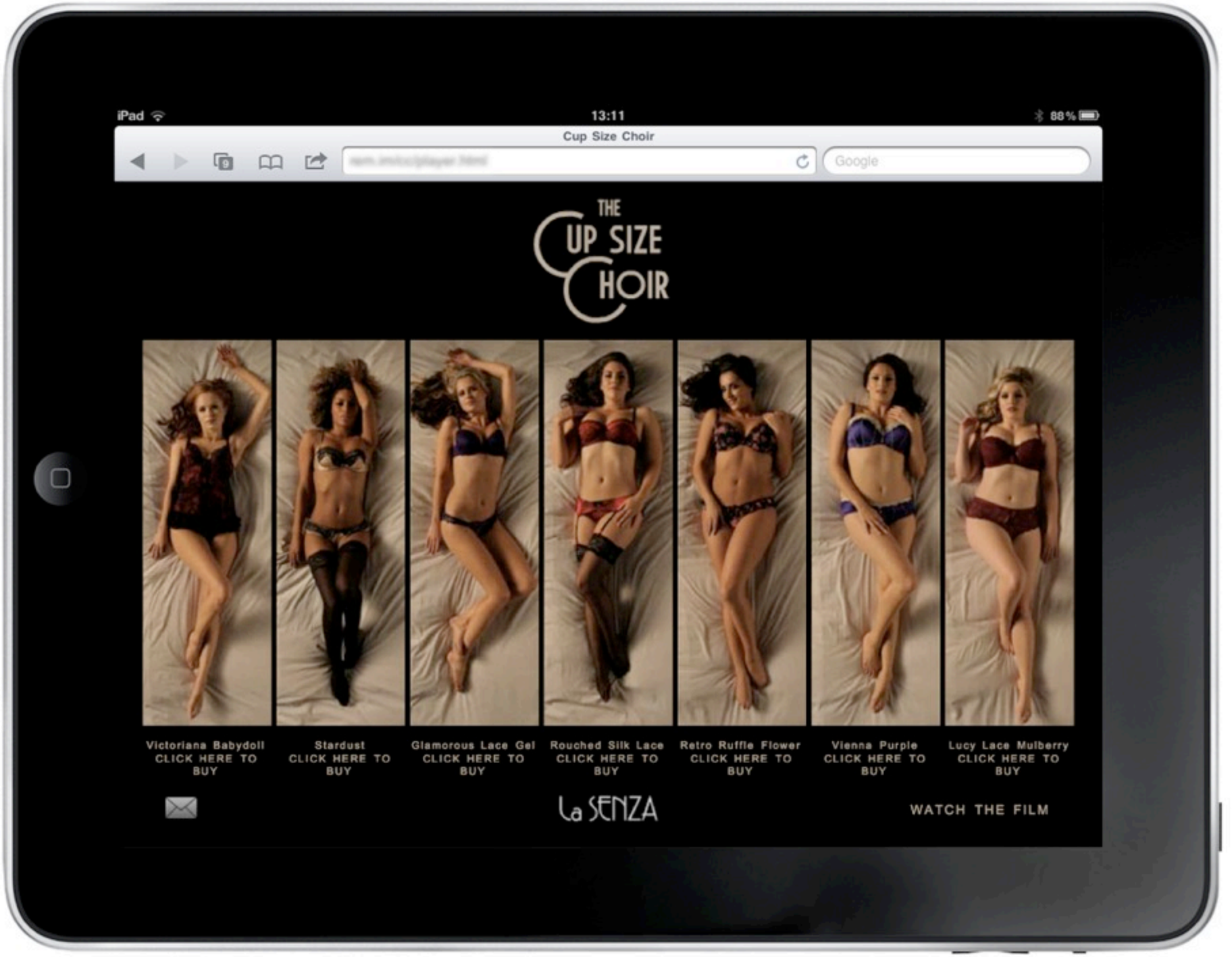
La Senza presents The Cup S

www.cupsizechoir.com/?k=1

THE CUP SIZE CHOIR

DECK THE HALLS

RECORD YOUR TUNE


iPad
13:11
88%
Cup Size Choir
Google
THE CUP SIZE CHOIR
Victoriana Babydoll CLICK HERE TO BUY
Stardust CLICK HERE TO BUY
Glamorous Lace Gel CLICK HERE TO BUY
Rouched Silk Lace CLICK HERE TO BUY
Retro Ruffle Flower CLICK HERE TO BUY
Vienna Purple CLICK HERE TO BUY
Lucy Lace Mulberry CLICK HERE TO BUY
La SENZA
WATCH THE FILM

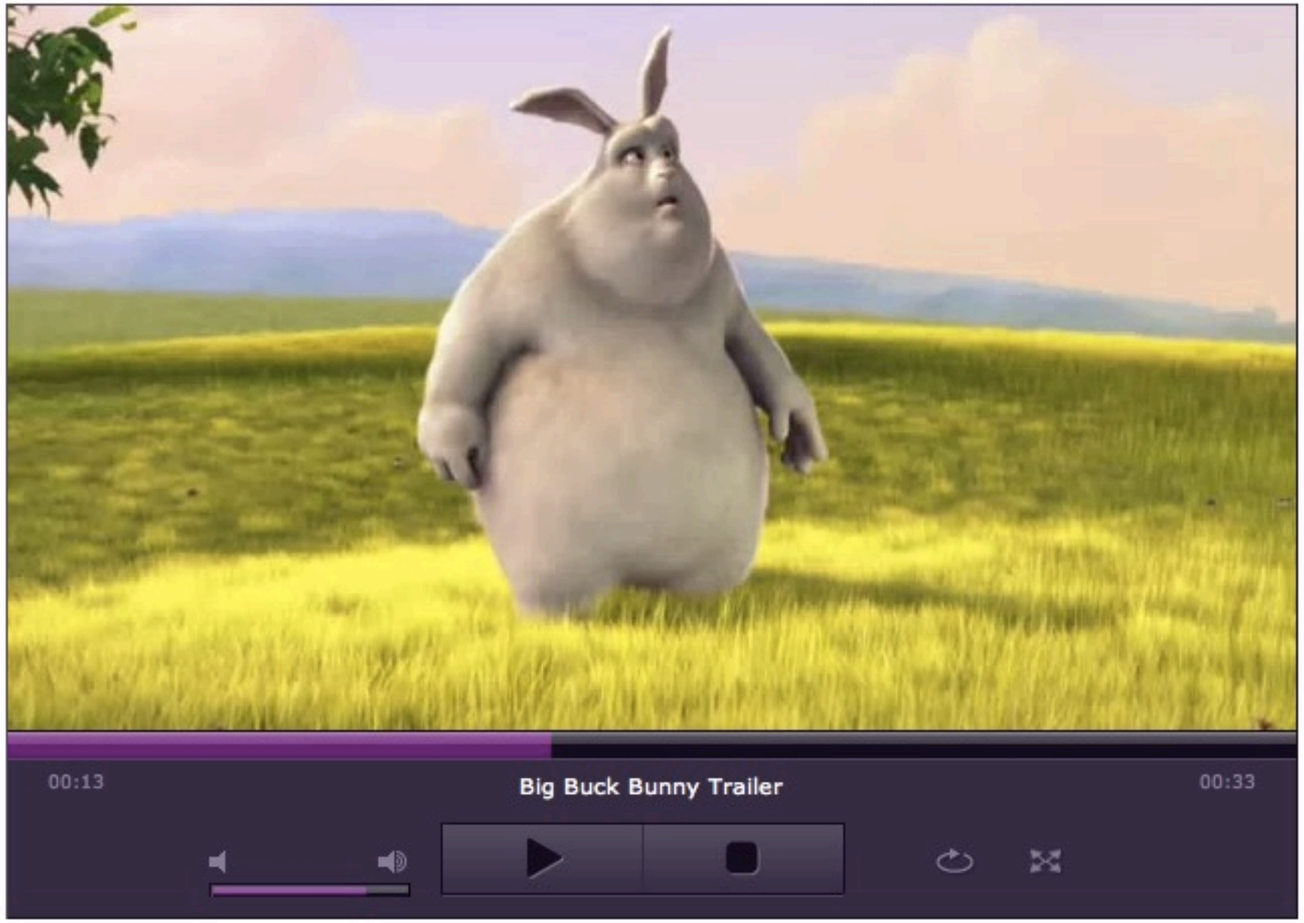
1. video & Audio

2. Real-time

3. Graphics


Video killed the
~~radio~~ Flash star?

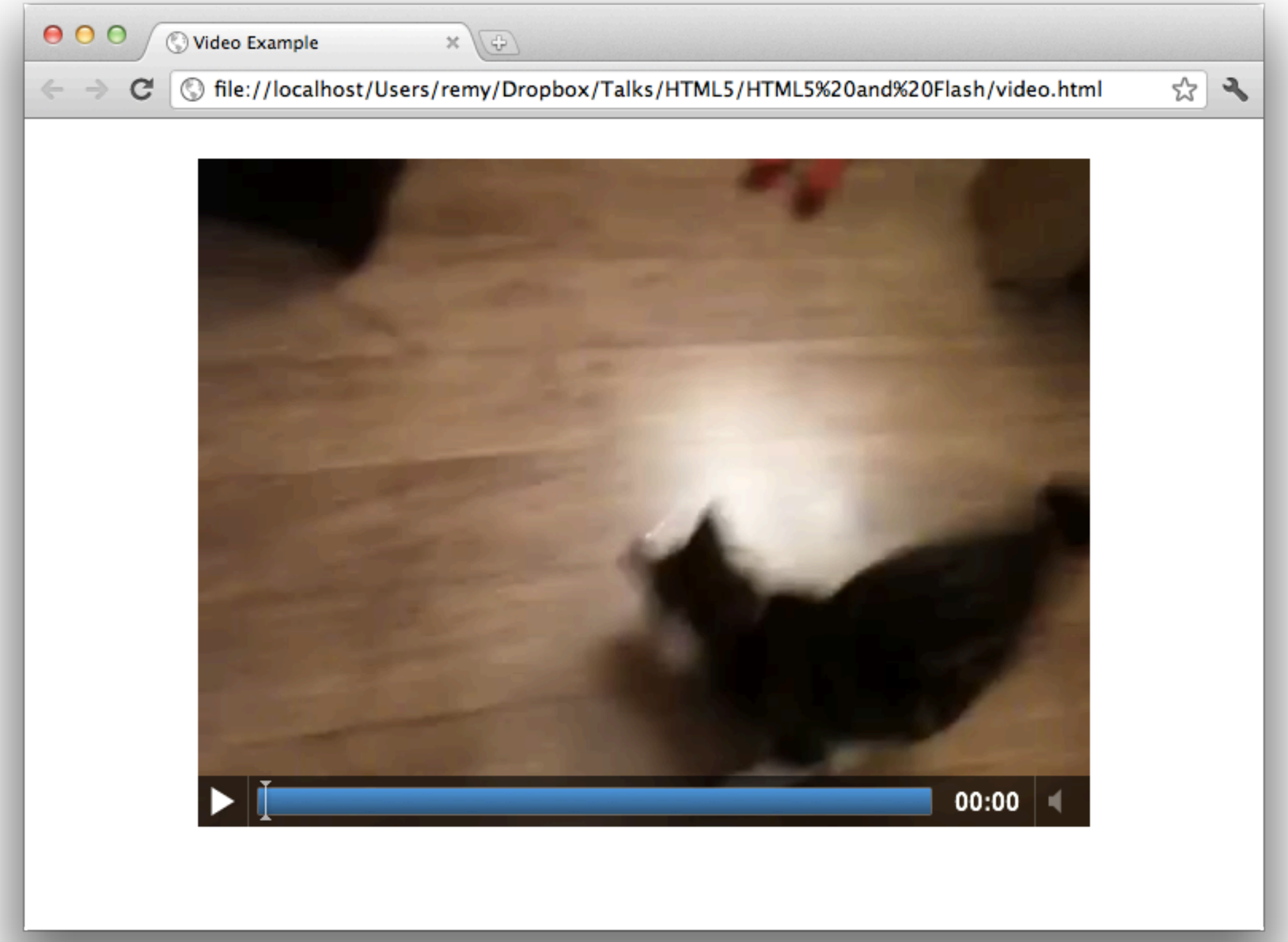
Who would jump to create another video player?




IE9 & all others
supported

```
<video src="dizzy.mp4"></video>
```

```html
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset=utf-8 />
  <title>Video Example</title>
</head>
<body>
<video src="dizzy.mp4" controls></video>
</body>
</html>
```


Video Example
file://localhost/Users/remy/Dropbox/Talks/HTML5/HTML5%20and%20Flash/video.html
00:00

WATCH WHATEVER WHENEVER.

With Sony's Betamax SL-8600 videorecorder, you can see any TV show you want to see anytime you want to see it.

Because Betamax, which plugs into any TV set and is easy to operate, can videotape a show up to three-hours long (with the L-750 videocassette) while you're doing something else—even while you're out of the house, by setting the electronic timer.

It can also videotape something off one channel while you're watching another channel.

And remember, Sony has more experience in videorecorders than anyone (over 20 years!). In fact, we've sold more videorecorders to broadcasters and industry than any other consumer manufacturer. We even make our own tape.

For years you've watched TV shows at the times you've had to. Now you can watch them at the times you want to.

SONY BETAMAX

THE LEADER IN VIDEO RECORDING

```
<video src="dizzy.mp4" controls></video>
```

```html
<video controls>
  <source type="video/mp4" src="dizzy.mp4" codecs="avc1.42E01E, mp4a.40.2">
  <source type="video/webm" src="dizzy.webm" codecs="vp8, vorbis">
  <source type="video/ogg" src="dizzy.ogv" codecs="theora, vorbis">
</video>
```

```html
<video controls>
  <source type="video/mp4" src="dizzy.mp4">
  <source type="video/webm" src="dizzy.webm">
  <source type="video/ogg" src="dizzy.ogv">
</video>
```

```html
<video controls>
  <source src="dizzy.mp4">
  <source src="dizzy.webm">
  <source src="dizzy.ogv">
</video>
```

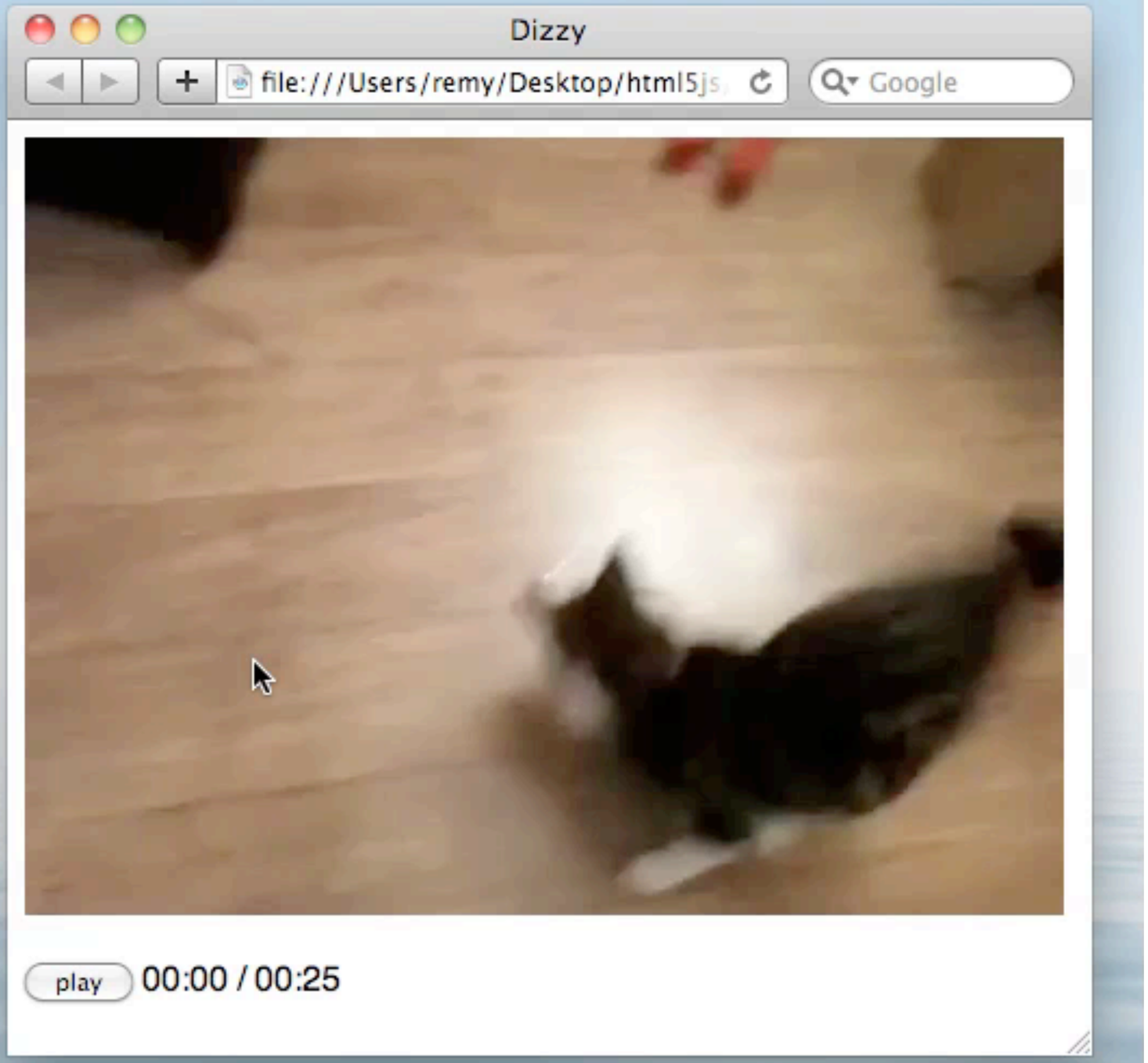
```html
<video controls>
  <source src="dizzy-hd.mp4" media="(min-device-height: 720px)">
  <source src="dizzy-regular.mp4">
  <...>
</video>
```

Video for Everybody

```
<video width="640" height="360" poster="dizzy.jpg" controls>
  <source src="dizzy.mp4" type="video/mp4" />
  <source src="dizzy.web" type="video/webm" />
  <source src="dizzy.ogv" type="video/ogg" /><!--[if gt IE 6]>
  <object width="640" height="375" classid="clsid:02BF25D5-8C17-4B23-BC80-D3488ABDDC6B"><!
  [endif]--><!--[if !IE]><!-->
  <object width="640" height="375" type="video/quicktime" data="dizzy.mp4">
  <!--<![endif]-->
  <param name="src" value="dizzy.mp4" />
  <param name="showlogo" value="false" />
  <object width="640" height="380" type="application/x-shockwave-flash"
    data="player.swf?image=dizzy.jpg&amp;file=dizzy.mp4">
    <param name="movie" value="player.swf?image=dizzy.jpg&amp;file=dizzy.mp4" />
    <img src="dizzy.jpg" width="640" height="360" alt="Title of video"
         title="No video playback capabilities, please download the video below" />
  </object><!--[if gt IE 6]><!--></object><!--<![endif]-->
</video>
<p>Download Video: <a href="dizzy.mp4">High Quality "MP4"</a> | <a href="dizzy.ogv">Low Quality "OGG"</a></p>
```

http://camendesign.com/code/video_for_everybody

Scripting


Dizzy
file:///Users/remy/Desktop/html5js
Google
play
00:00 / 00:25

```
var video = document.getElementById('myVideo');
if (video.paused) {
  video.play();
}
```

```
var video = document.getElementById('myVideo');
if (video.paused) {
  video.play();
}

// position & asTime defined elsewhere
video.addEventListener('timeupdate', function () {
  positon.innerHTML = asTime(this.currentTime);
}, false);
```

Simple API

Methods: **play(), pause(), canPlayType(mime)**

Properties: **currentTime, paused, duration, loop, autoplay, muted, volume, etc**

Events: **loadedmetadata, canplay, progress, play, pause, seeking, timeupdate, etc**

Fullscreen?

⚠ *Warning! User agents **should not provide a public API to cause videos to be shown full-screen**. A script, combined with a carefully crafted video file, could trick the user into thinking a system-modal dialog had been shown, and prompt the user for a password. There is also the danger of "mere" annoyance, with pages launching full-screen videos when links are clicked or pages navigated. Instead, user-agent specific interface features may be provided to easily allow the user to obtain a full-screen playback mode.*

Safari File Edit View History Bookmarks Develop Window Help (3:18) Tue 15:39

HTML5 Demo: video

http://html5demos.com/video

Google

Video

fullscreen pause 00:07 / 00:25

Note that (at time of writing) Webkit nightly supports full screen mode, which will add a button above.

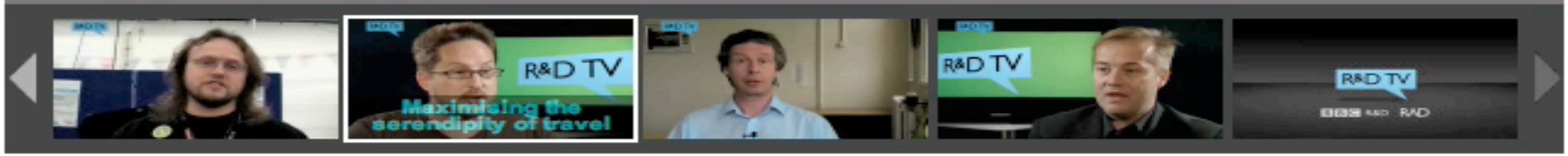
HTML5 demo

R&D TV Episode 2

http://open.bbc.co.uk/rad/demos/html5/rdtv/episode2/

Google

Programme chapters



This is a proof of concept demonstration of HTML pluginless Video and Audio playback, showing AV content synchronised to chapters, allowing direct access to specific sections

1. No plugins required
2. Simple API: play, pause, etc
3. Video & Audio: the same
4. HTML & CSS - no compile or different skills required

1. Codecs

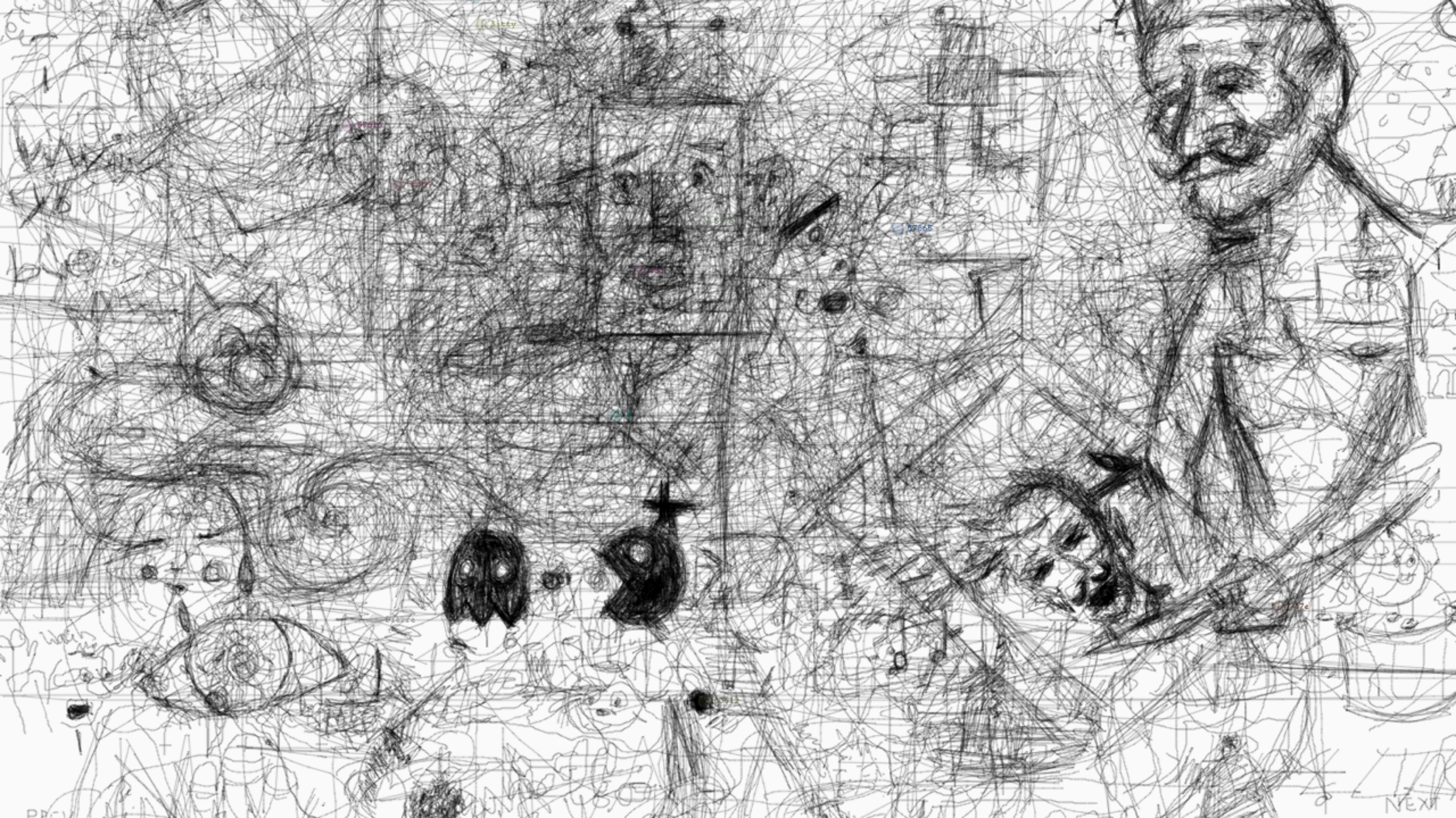
2. Our friend IE

Flash will be needed as a backup to video for a while yet.

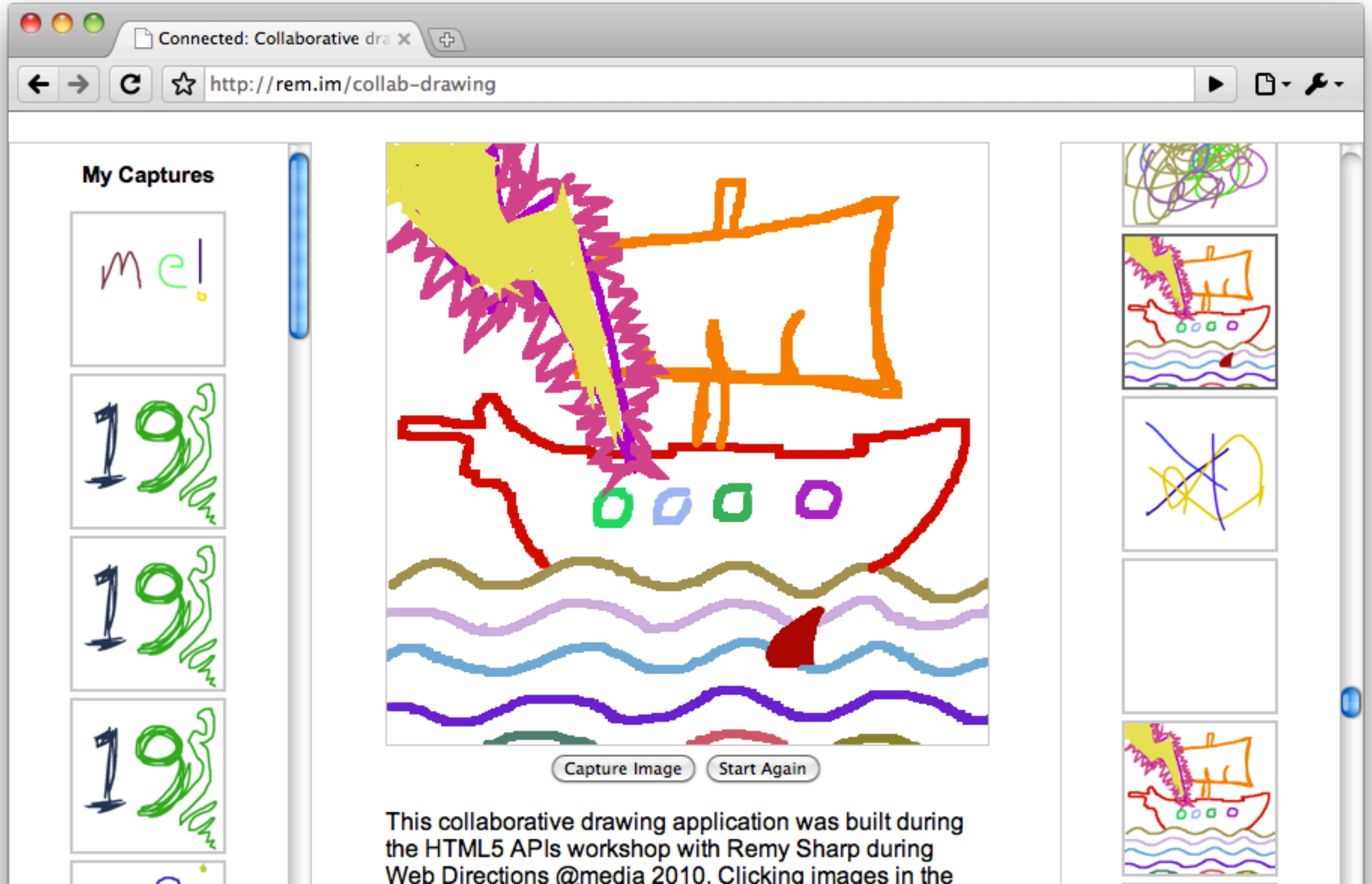
Realtime


Now Playing
8 of 20
Cadillac On 22's
David Banner
Mississippi: The Album
0:14
-4:09
MENU
Enercell
RadioShack
ALKALINE BATTERY


7
17



http://rem.im/collab-drawing.html



WebSocket

- Low latency
- Bi-directional
- No same-original rules
- Chrome, Safari, MobileSafari & Firefox
- Fallback on Flash...ironically

WebSocket

```
var ws = new WebSocket("ws://myserver.com/");

ws.onmessage = function (event) {
  var data = JSON.parse(event.data);
};

ws.onclose = function () {};

ws.onopen = function () {};
```

```
ws.onmessage = function (event) {
  var data = JSON.parse(event.data);
};
```

All message data lives here

EventSource

- Server pushed events
- Same-original rules apply
- Can fallback with JavaScript

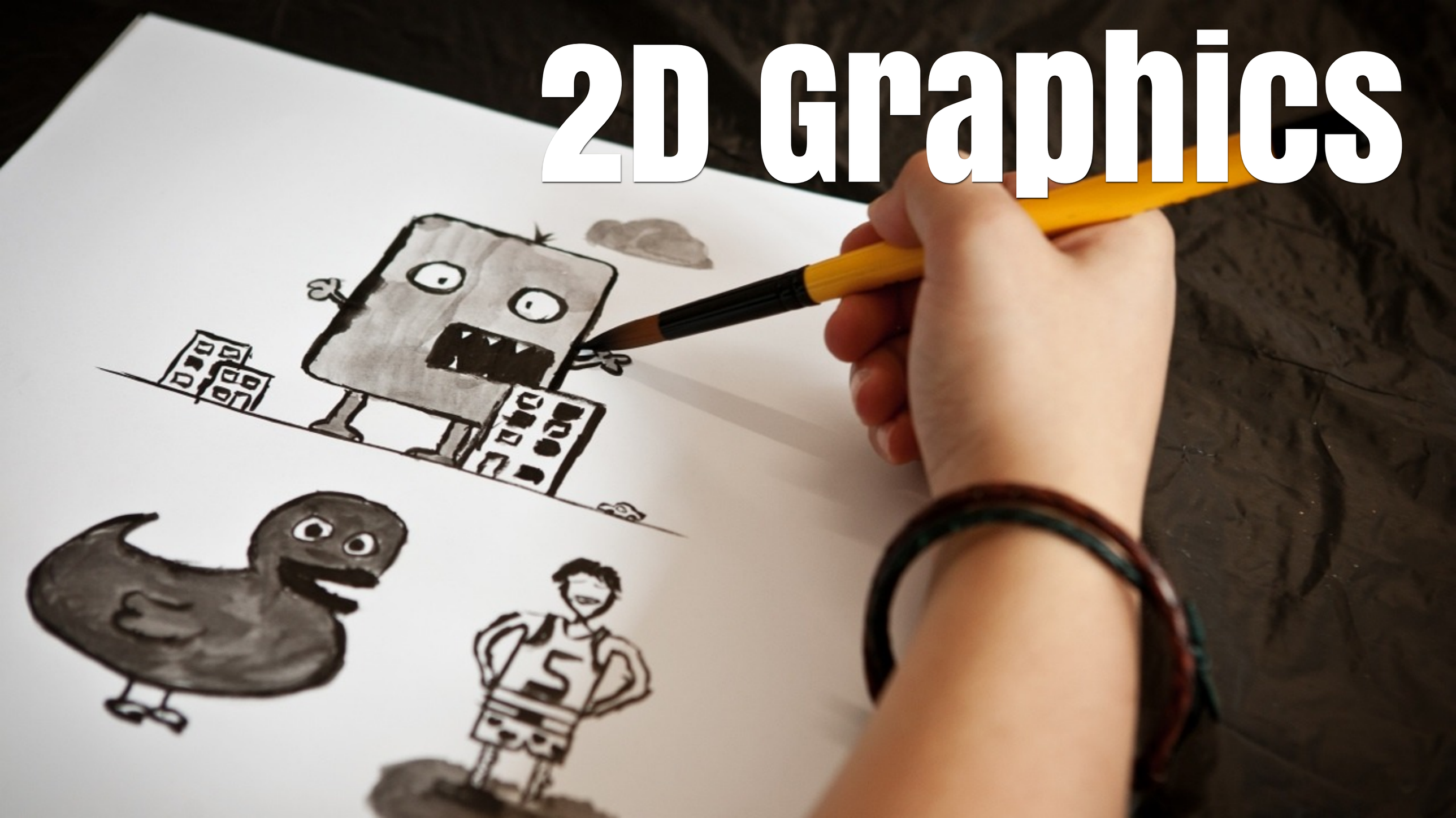
EventSource

```
var es = new EventSource("/x-service/");

es.onmessage = function (event) {
  var data = JSON.parse(event.data);
};

es.onopen = function () {};
```

Graphics


gold
pur ain's majesty
y ow orange
sky blue
wild strawberry
green
turq oise blue
ow green
salmon
Cadet blue
silver
spring green

2D Graphics




Canvas
API

```
<canvas></canvas>
```

HTML5

```
var canvas = document.getElementsByTagName('canvas')[0],
    ctx = canvas.getContext('2d');
```

2D drawing API

```
canvas.getContext('2d')
```

Darkroom

http://mugtug.com/darkroom/

Open | Save | darkroom beta | Help | Login

MugTug | Darkroom

Rotate | Mirror | Crop | Red Filter | Undo

Levels

Channel: Auto:

White Balance

Temp 0.0

Tint 0.0

Exposure

Exposure 0.0

Brightness 0.0

Enhance

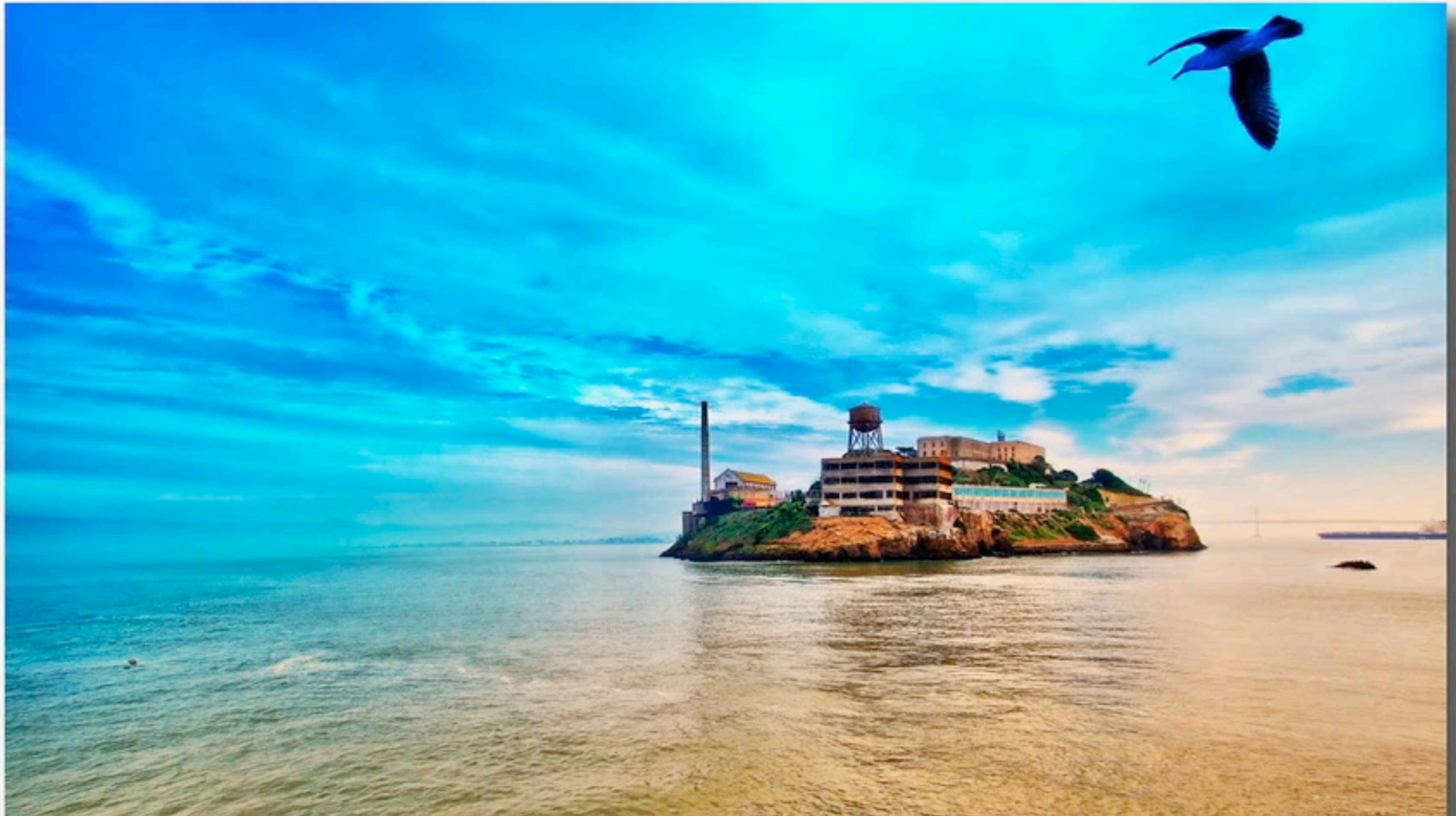
Contrast 0.0

Saturation 1.0

Effects

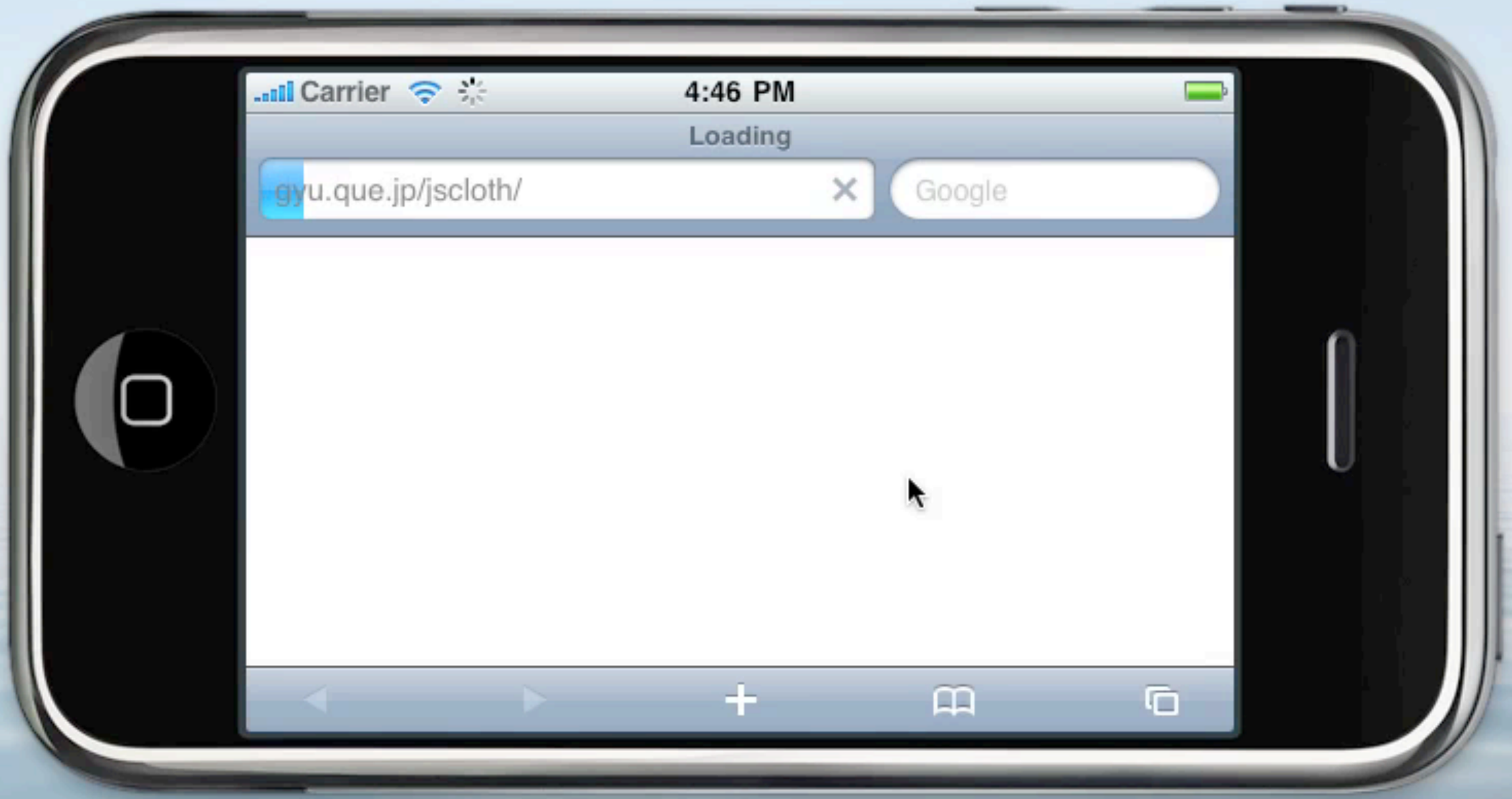
None

Black And White



Google Analytics – Flash charts

Interactive Demo – Canvas charts


Carrier
4:46 PM
Loading
gyu.que.jp/jscloth/
Google

A Tale of Two Cities – power

ataleoftwocities.nestoria.co.uk

A Tale Of Two Cities

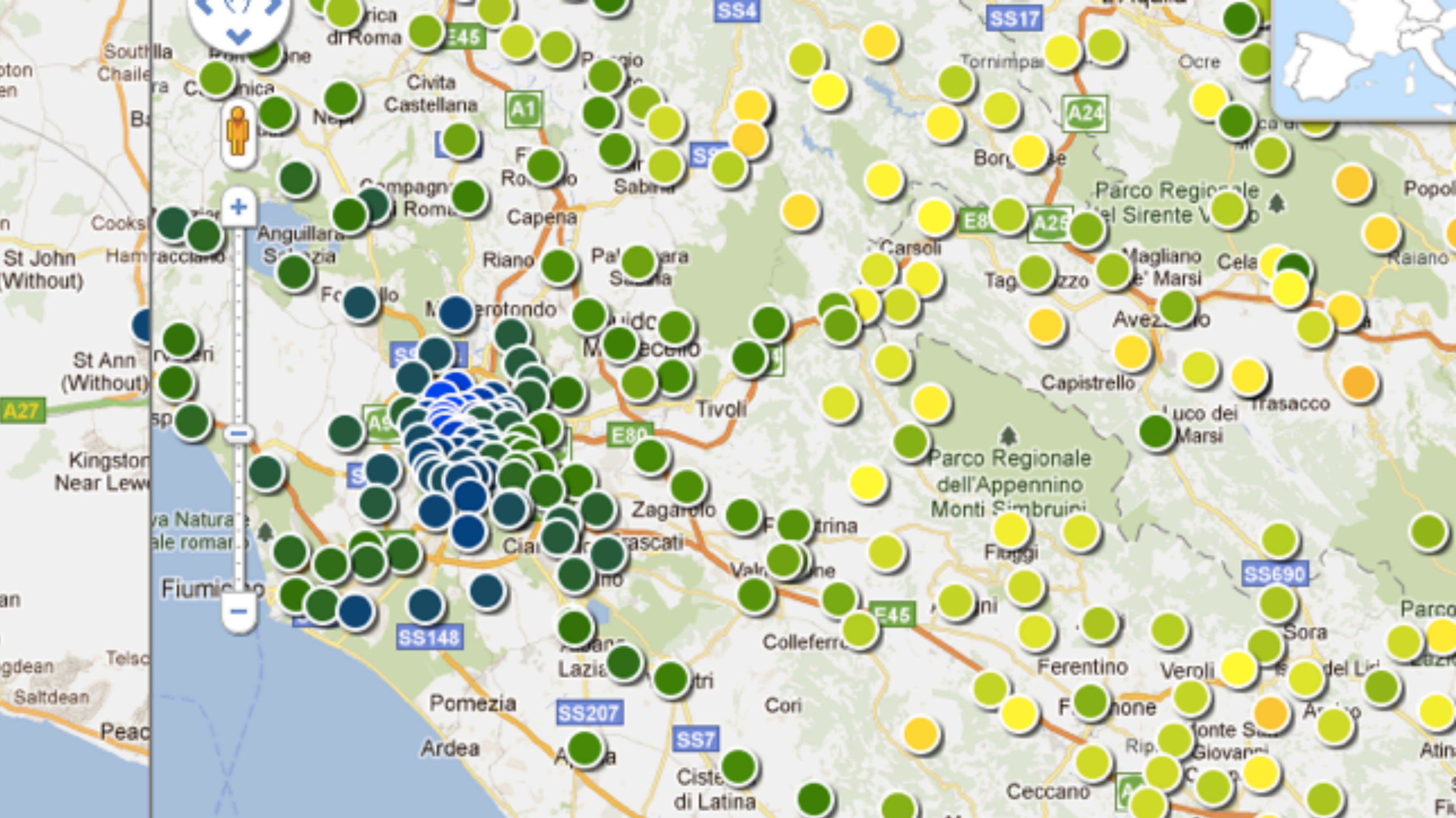
Price: £27k - £5,572k
€32k - €6,479k

Quick compare

Map data ©2011 Tele Atlas - Terms of Use

powered by nestoria

built by LeftLogic


Civita Castellana
Capena
Riano
Anguillara Sabazia
Tivoli
Zagarolo
Frascati
Fiumicino
Pomezia
Ardea
Colleferro
Cori
Cisterna di Latina
Ceccano
Ferentino
Veroli
Sora
Fiuggi
Capistrello
Avezzano
Magliano de' Marsi
Carsoli
Tagliacozzo
Ortona
Parco Regionale del Sirente
Parco Regionale dell'Appennino Monti Simbruini
Trasacco
Cerchio
St John (Without)
St Ann (Without)
Kingston Near Lewes
Saltdean
Peacehaven
Telscombe
Southwick
Chailey
Hamsey
Cooksbridge
E45
A1
SS4
SS17
A24
A25
E80
A27
SS148
SS207
SS7
SS690

```
function canvas(w, h) {
  var ctx = document.createElement('canvas').getContext('2d'),
      canvas = ctx.canvas;
  canvas.width = w;
  canvas.height = h;
  return ctx;
}

var rainbow = canvas(100, 1),
    rainbowGrad = createRainbow(rainbow);

rainbow.fillStyle = rainbowGrad;
var imageData = rainbow.getImageData(0, 0, 100, 1),
    pixels = imageData.data;

// loop over each pixel and create the dot image
for (var i = 0; i < pixels.length; i += 4) {
  createPoint(pixels, i);
}
```

```
function createPoint(pixels, i) {
  var dot = canvas(24, 24);

  // outer white circle
  dot.fillStyle = '#fff';
  dot.arc(12, 12, 10, 0, Math.PI * 2, true);

  // drop shadow
  dot.shadowBlur = 2;
  dot.shadowColor = 'rgba(0,0,0,.7)';
  dot.shadowOffsetX = 2;
  dot.shadowOffsetY = 2;

  // fill outer ring
  dot.fill();
```

```
  // remove shadow
  dot.shadowBlur = 0;
  dot.shadowColor = 'rgba(0,0,0,0)';

  dot.fillStyle = 'rgb(' + [
    pixels[i],   // red
    pixels[i+1], // green
    pixels[i+2]  // blue
  ].join(',') + ')';

  // start inner circle
  dot.beginPath();
  dot.arc(12, 12, 8, 0, Math.PI*2, true);

  // fill inner circle
  dot.fill();

  new google.maps.MarkerImage(
    dot.canvas.toDataURL('image/png')
  );
}
```

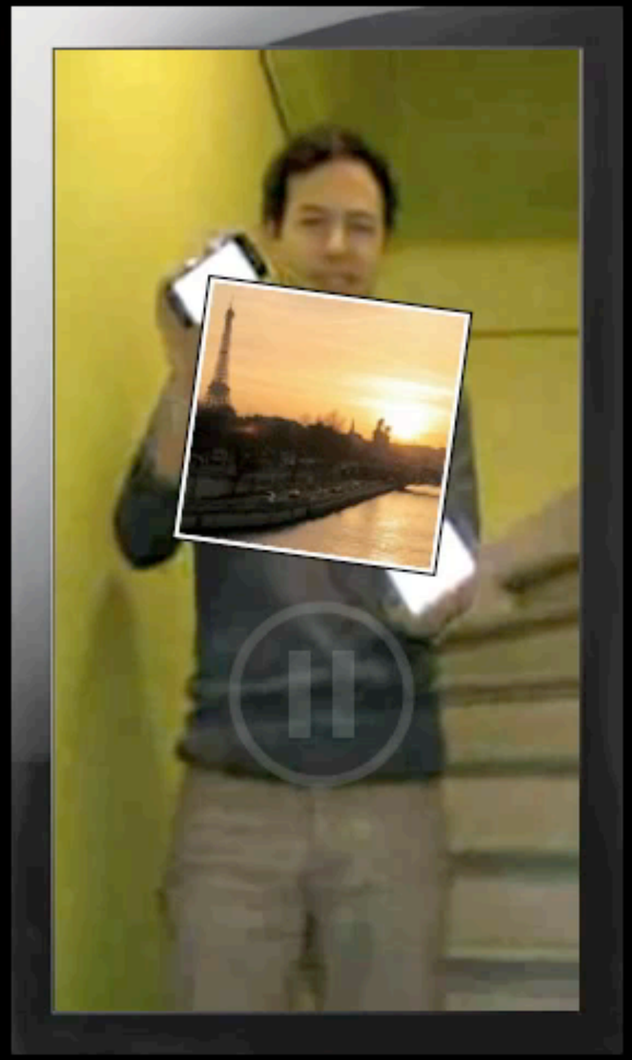
```
new google.maps.MarkerImage(
  dot.canvas.toDataURL('image/png')
);
```

Dynamic Content Injection

http://people.mozilla.com/~prouget/demos/DynamicContentInjection/play.xhtm

Google

Click to play:



Choose a pattern:

Video:

Image:

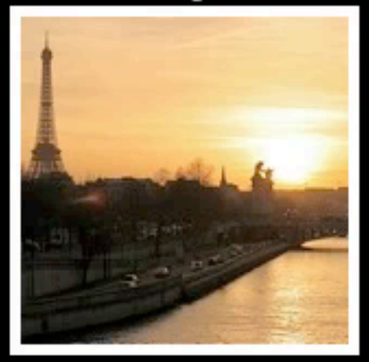
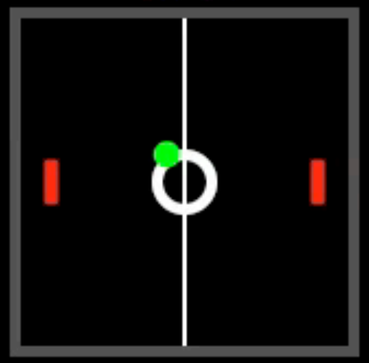


Image:

Canvas:



Your text:

Your drawing:

clear 3

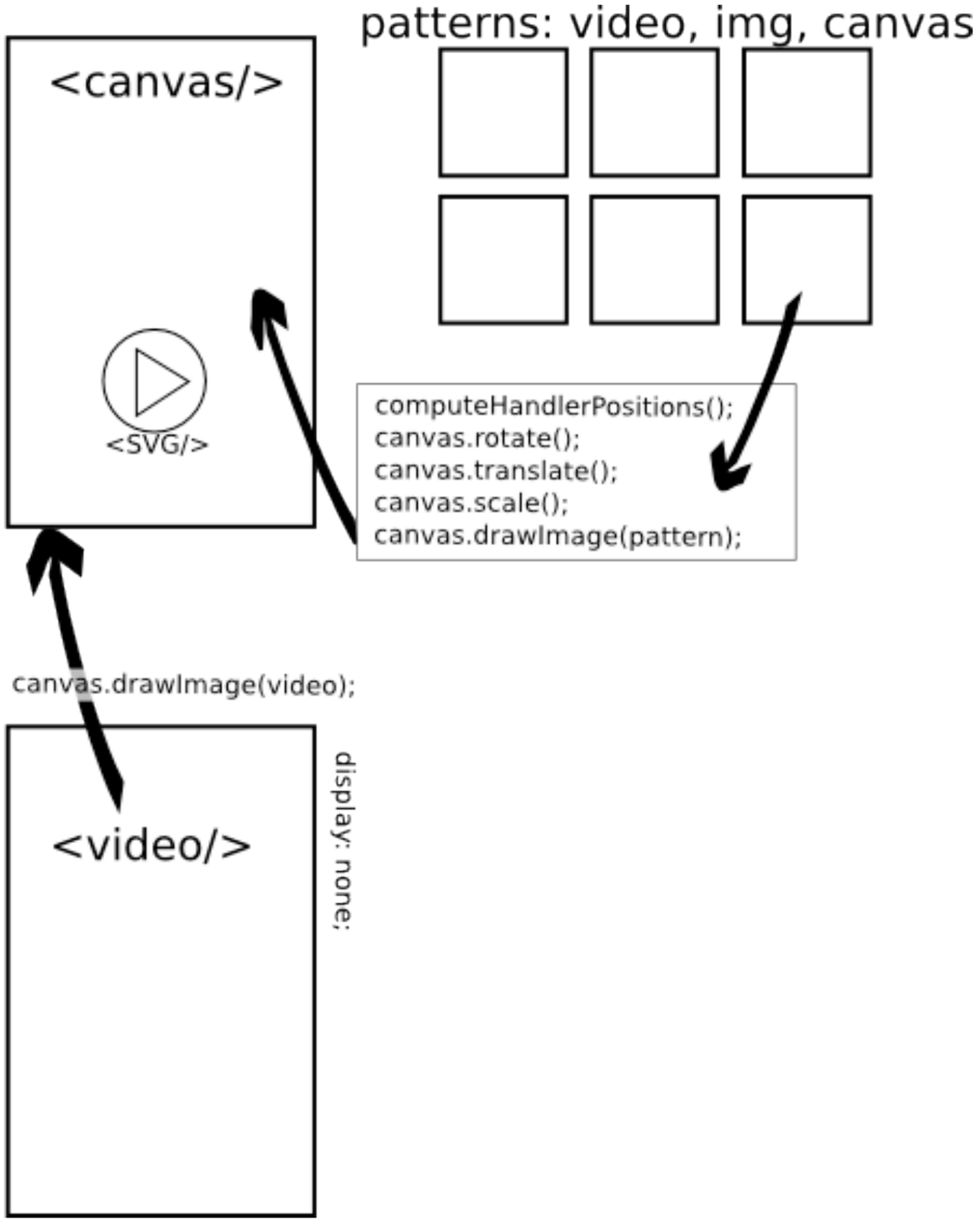
Transferring data from people.mozilla.com...

1. Timer paints video into canvas

2. Reads all pixels for bright spots

3. Translates to the vector

4. Draws selected input



http://blog.mozbox.org/post/2009/04/12/Firefox-35%3A-a-new-experiment-with-canvas-video

1. Flash and canvas share the same black box features

2. People will abuse the technology

Scalable Vector Graphics

Native SVG in Firefox...

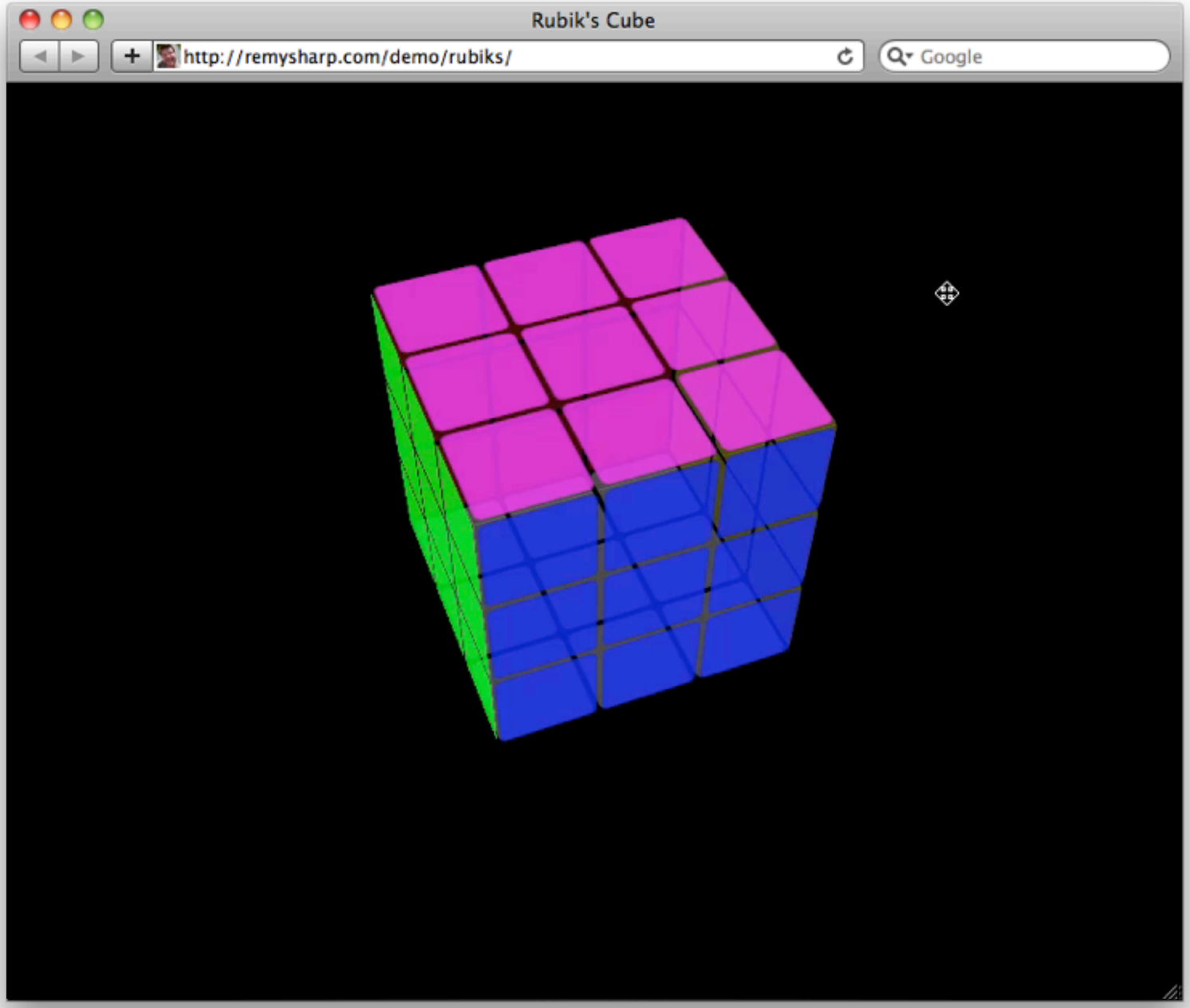
...using Flash!

Raphaël.js


3D

CSS

Yeah, 3D CSS.



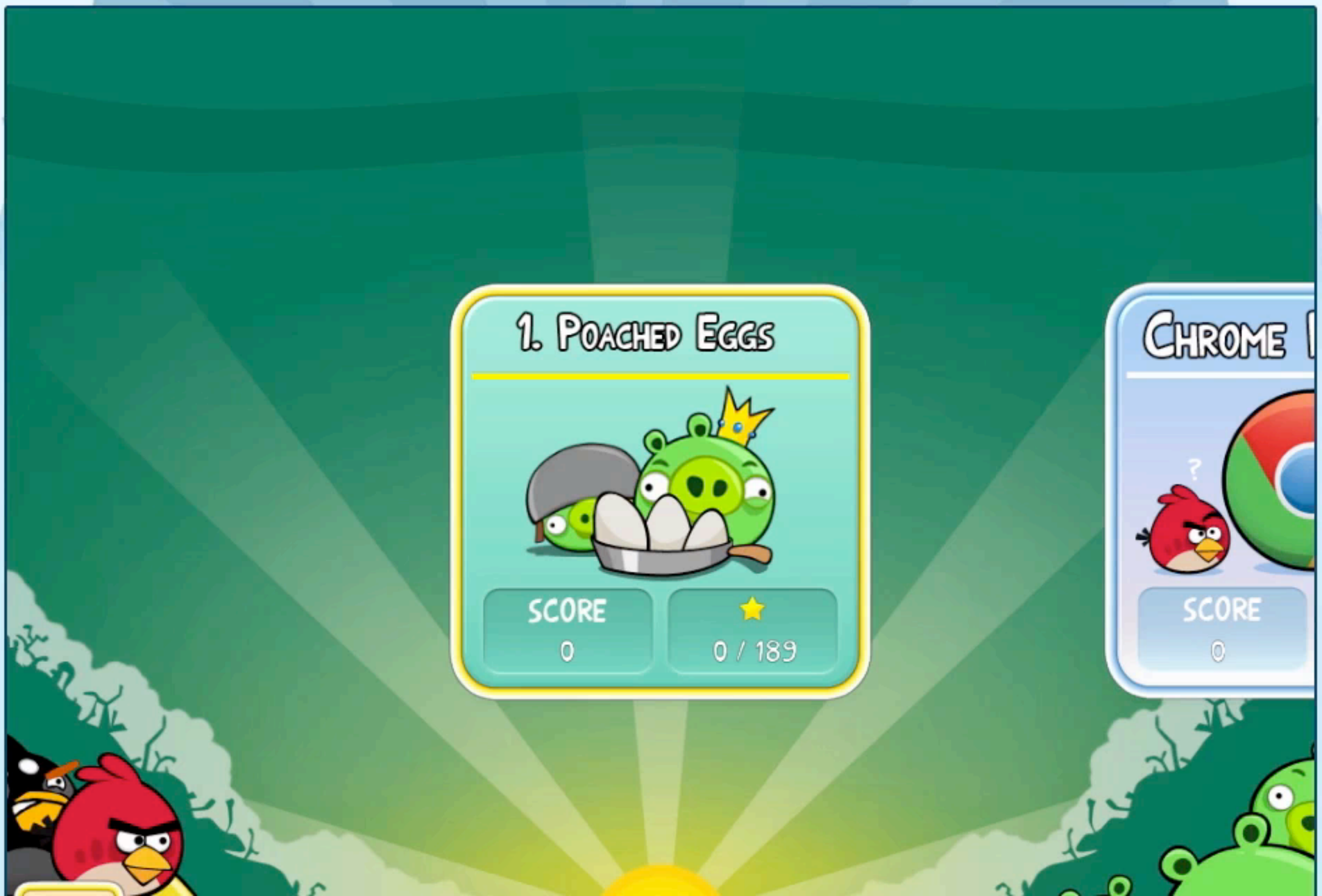

```
#canvas {
  -webkit-perspective: 800;
  -webkit-perspective-origin: 50% 20em;
}

#rubiks {
  -webkit-transform-style: preserve-3d;
  -webkit-transform: rotateX(15deg) rota
}

#rubiks .face1  {
  -webkit-transform: rotateX(90deg) tran
}

#rubiks .face2 { /* front */
  -webkit-transform: translateZ(10.8em);
}

#rubiks .face3 {
  -webkit-transform: rotateY(90deg) tran
}

#rubiks .face4 { /* back face */
  -webkit-transform: rotateY(180deg) tra
}

#rubiks .face5 {
  -webkit-transform: rotateY(-90deg) tra
}
```

WebGL


Chrome File Edit View History Bookmarks Window Help
(Charged) Mon 17:54
AKEMI - WebGL + haXe Expe
static.britzpetermann.com/experiments/akemi/
AKEMI
YOU SEE A DEMONSTRATION AND PROOF-OF-CONCEPT OF HOW SMOOTHLY WEBGL AND HAXE COMBINES TO A NICE WEB-EXPERIENCE BY SHADING AND COMPOSING THE FAMOUS STRANGE-ATTRACTOR.
START

Angry Birds Chrome

chrome.angrybirds.com



Mobile?

WebGL in Firefox on Nokia N900

tweetcoding with canvas

jsbin.com/uboqos/26

#tweetcoding with canvas

#tweetcoding round 1 winne | #tweetcoding

web.archive.org/web/20090418053536/http://tweetcoding.machine501.com/

INTERNET ARCHIVE WayBackMachine BETA

http://tweetcoding.machine501.com/ Go

13 captures
23 Feb 09 - 13 Jan 10

MAR APR SEP
2008 18 2009 2010

tomee6 7 of 9

Help ?

lmrivas
Osciloscope : Noisy pulse #tweetcoding http://twitter.com/lmrivas/status/1267192483
Mon, 02 Mar 2009 00:06:55 +0000

lmrivas
i++;g.clear();ls(1);for(j=0;j<600;j++){g.drawCircle(j,200+50*s((i-j/9)/2)-25*r()*s((i-j/5*r())),1)}
See Result
See submission tweet
Mon Mar 02 00:06:19 +0000 2009

tomee6
#tweetcoding "diagonal snake" use the mouse to direct the snake and go as long as you can. http://twitter.com/tomee6/status/1267109791
Sun, 01 Mar 2009 23:41:19 +0000

tomee6
if(!i++){g.clear();mt(5,5);o={x:5,y:5};}a="+o.x+o.y;b=o[a];ls(b?b:i/42,7<<b);b?i=0:o[a]=23;lt(o.x+=o.x<mouseX?5:-5,o.y+=o.y<mouseY?5:-5);
See Result
See submission tweet
Sun Mar 01 23:39:25 +0000 2009

LorenBednar
#tweetcoding "One Sine Day" mouse left and right to move :) (fixed) http://twitter.com/LorenBednar/status/1266830638
Sun, 01 Mar 2009 22:13:20 +0000

...or just ask a question :)

- @rem